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AUTHOR Byers, James E.
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IDENTIFIERS *General Mathematics

ABSTRACT

This is a series of 12 teacher-prepared Learning Activity Packages (LAPs) for General Mathematics 1. Topics covered include using mathematical tools; counting and computing; measurement: whole and fractional numbers; measurement: decimal notation; percent; tables and graphs; introductory algebra; equations and applications; integers; and computing, managing, and using income. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets, tape recordings, and filmstrips that go with the unit; and a student self-evaluation problem set. (DT)

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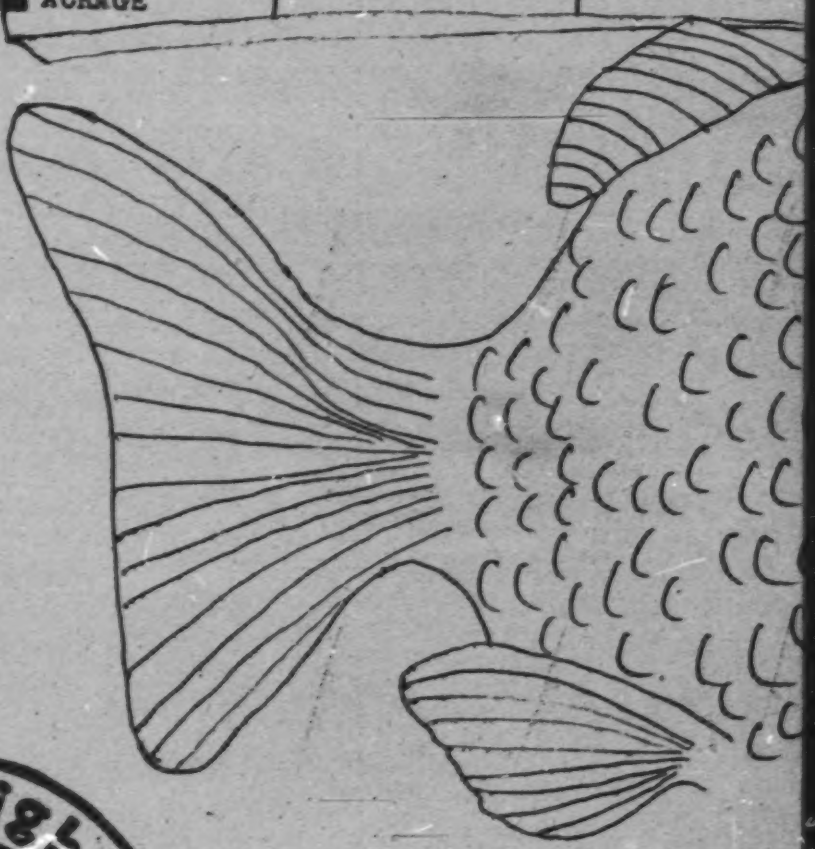
LEARNING ACTIVITY PACKAGE

USING MATHEMATICAL TOOLS



Ninety Six High School
Ninety Six, S.C.

General Math 92

LAP NUMBER 1

REVIEWED BY

WRITTEN BY James E. Byers

Revised by: Miss McMullan

SE 018 193

12573 3

I N S T R U C T I O N S

I. Read Rationale

II. Read Behavioral Objectives

III. Resources

A. All work must be done in math notebook with pencil only.

B. Keep your notebook up to date. Your teacher may ask for it at any time (without warning).

C. Work all the exercises in at least one text for each objective.

1. Always do the starred (*) or required exercises.

2. Always check your exercises in your notebook (see your teacher)

IV. Self Evaluation

A. Must be taken at completion of activities for each section.

B. Does not affect your grade in any way.

V. Advanced Study

A. To be done only after all previous work has been satisfactorily completed.

B. Must be approved by teacher.

VI. Progress Test and LAP Test.

A. Teacher graded

B. Recycling may take place at this time if test is not satisfactory.

DO NOT LOSE YOUR LAP. IF YOU DO, YOU MUST BUY ANOTHER ONE.

RATIONALE (The LAP's Purpose)

Many vocations require an ability to use mathematical tools of measurement and construction. A carpenter must be able to construct angles of equal measure. A dressmaker and a tailor must measure their fabrics. The farmer, housewife, doctor, and painter all use measuring tools in their work.

In this LAP, you will learn how to use and apply to everyday life the ruler, compass, and protractor.

Section I

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

(NOTE: Draw - without using any instruments

Construct - using instruments such as ruler, protractor or compass, etc.)

1. Measure the length of any given line segment with the correct mathematical tool.

2. Measure with the correct mathematical tool any given angle and state whether or not it is a(n) acute, obtuse, straight, right, or reflex angle.

3. Construct an angle of any given measure.

4. Given a compass and a ruler:

   (a) construct an angle of any given size

   (b) bisect any given angle

5. Given a ruler and a compass, construct the following:

   (a) a line segment and a perpendicular to the line segment from any given point.

   (b) a triangle with any given base angles or sides

   (c) a circle with any given radius or diameter

   (d) a line parallel to any given line

6. Given a ruler:

   (a) construct a line segment of a given length

   (b) measure the distance of a point from the end point of a constructed line segment.

At the completion of Behavioral Objectives 3 and 5, see the instructor for additional worksheets.

Resources: Section I

Objective 1:

General Math I: read pp. 13-15, Ex. 1-18, p. 15-16

Modern School Mathematics 7: read pp. 257-259, pp. 417-419

Wollensak Teaching Tape:

C-3404 Using a Ruler # 1
C-3405 Using a Ruler # 2

Objective 2:

General Math I: read pp. 27-30, Ex. 1-2, p. 30; read pp. 32-33, Ex. 15-16 p. 35.

Modern School Mathematics 7: read pp. 423-427, Ex. 1-4, p. 429; Ex. 17-20, p. 430

Wollensak Teaching Tapes:

C-3401 Protractor: Measuring Angles
C-3402 Protractor: Const cting Angles

Picturol Filmstrip (Basic Angles & Experimental Geometry) FS242, 59F

Curriculum Films, Inc. (Vocabulary, Lines, & Lines II) FS227, 48C

Objective 3:

General Math I: read p. 31, Ex. 1-20 p. 32

Modern School Mathematics 7: read pp. 427-429, Ex. 5-12, p. 429

Objective 4:

General Math I: read pp. 39-41, Ex. 1-14 pp. 41-42

Objective 5:

(a) General Math I: read pp. 42-44 Ex. 1-5,p.44

Modern School Math. 7: read pp. 431-432

(b) General Math I: read pp. 56-59, Ex. 1,3,5, p. 60

(c) General Math I: read pp. 17-21, Ex. 5-6, p. 22

Modern School Mathematics 7: read pp. 445-446

Objective 5 (cont.)

(d) General Math I: read pp. 45-47, Ex. 8 p. 49

Objective 6:

General Math I: read p. 21, Ex. 11-12, p. 22 Ex. 1-8, p. 65

Self Evaluation

Using your ruler draw line segments of the following lengths:

1. $3\frac{3}{4}$"

2. $2\frac{1}{2}$"

3. $1\frac{3}{8}$"

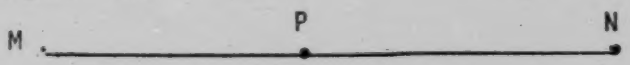
Using your ruler to measure each of the following line segments

4. _____

5. _____

6. _____.

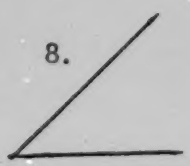
7. Measure the distance of point "P" from the endpoint M on line segment MN.



Use your protractor to do the following:

Measure each angle and state if it is acute, obtuse, straight, right, or reflex.

8.



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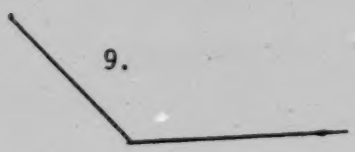

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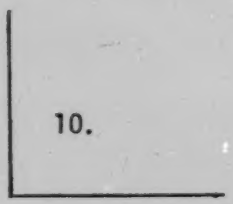
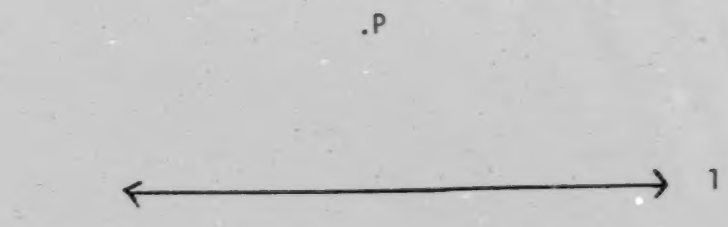


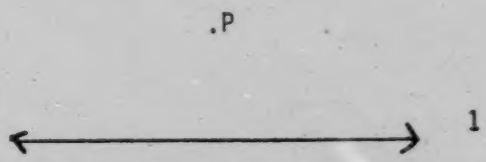
11. Using your protractor, draw an angle which measures 55^{o}.

Self Evaluation (cont.)

12. From the point P, construct a perpendicular to the Line l.



13. Through point P, construct a line parallel to line l.



14. Construct a triangle having sides that are 1", 2", and 3".

15. Use your compass to draw a circle with a radius of ½"

IF YOU HAVE MASTERED THE BEHAVIORAL OBJECTIVES, TAKE THE PROGRESS TEST.

Section II

BEHAVIORAL OBJECTIVES:

After the completion of your prescribed course of study, you will be able to:

7. Given any triangle, determine if it is a(n):

   a. isosceles triangle

   b. scalene triangle

   c. equilateral triangle

8. Given any polygon determine if it is a(n):

   a. rectangle
   b. rhombus
   c. quadrilateral
   d. pentagon
   e. hexagon
   f. square
   g. octagon
   h. trapezoid

9. Given any two angles, determine if they are:

   a. complementary
   b. supplementary
   c. adjacent
   d. vertical

10. Given an angle find its:

   a. complement
   b. supplement

11. Given any portion of a circle determine if it is a(n):

   a. major arc
   b. minor arc

12. Given any line segment on the interior of any given circle determine if it is a(n):

   a. chord
   b. diameter
   c. radius

13. Given any angle determine the:

   a. vertex
   b. two rays

At the completion of Behavioral Objectives 7 and 12, see the instructor for additional worksheets.

Resources:

Objective 7:

General Math I: read pp. 57-59, Ex. 2,4,6, p. 60

Modern School Mathematics 7: read p. 413

Picturol Filmstrip (Basic Angles & Experimental Geometry) FS242, 3·8C

Objective 8:

General Math I: read pp. 61-63, Ex. 1-2, p. 64

Modern School Mathematics 7: read pp. 412-413, Ex. 14-16, 21,22,25,26, p. 415

Mathematics 8: read pp. 156-157, Ex.1-4 (oral)

Objective 9:

General Math I: read pp. 36-37, Ex. 1-6, 8,10,13-14, pp. 37-38

Modern School Mathematics 7: read pp. 269-270, p. 425, Ex. 13-18 p. 428

Mathematics 8: read pp. 158-159, Ex. 2-4, p. 159

Popular Science Audio - Visuals, Inc. (The General Angle) 1184, 513

Objective 10:

General Math I: read pp. 36-37, Ex. 7,9,11,12,p. 38

Modern School Mathematics 7: read p. 425, Ex. 13-18, p. 428

Objective 11:

General Math I: read pp. 18-19, Ex. 2 & 4, p. 22

Modern School Mathematics 7: read pp. 482-484

Mathematics 8: read pp. 206

Objective 12:

General Math I: read pp. 19-21, Ex. 1,3,7-10, p. 22

Modern School Mathematics 7: Read pp. 444-445

Mathematics 8: read pp. 206-207, Ex. 1-9, p. 207

Resources (cont.)

Objective 13:

General Math I: read pp. 18, 23-24, Ex. 1-8, pp. 25-26

Modern School Mathematics 7: read pp. 252-254, 268, Ex. 1-28 pp. 256-257.

Mathematics 8: read pp. 150, 156, 158-160

Self Evaluation

Write in the blanks whether or not the following statements are true or false.

_____ 1. An equilateral triangle is a triangle having three sides of equal length.

_____ 2. An isosceles triangle is a triangle having two sides of equal length.

_____ 3. A scalene triangle is a triangle having three sides of equal length.

_____ 4. A rectangle is not a polygon.

_____ 5. Two angles are complementary if they equal 90^{o}.

_____ 6. A trapezoid, a hexagon, and a rhombus are not polygons.

_____ 7. An octagon, a circle, a square, are polygons.

_____ 8. All four sided figures are quadrilaterals.

_____ 9. The major arc on a circle is smaller than the minor arc.

_____ 10. If two angles are supplementary, they are also complementary.

Fill in the blanks.

11. Two angles opposite each other are called _____ angles.

12. Two angles which have the same vertex and a common side between them are called _____ angles.

13. The complement of an angle of 60^{o} is an angle of _____ ^{o}.

14. The supplement of an angle of 90^{o} is an angle of _____ ^{o}.

15. In the following circle (Fig. I) the major arc is _____.

16. In the same figure I, the minor arc is _____.

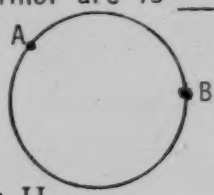


Figure I

17. Name the diameter in Figure II. _____

18. Name the radius in Figure II. _____ or _____

Self Evaluation (cont.)

19. Name the chord in Figure II. _____ or _____

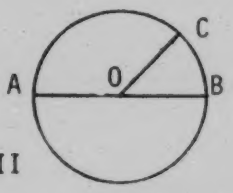


Figure II

20. Name the vertex of the angle in Figure III._____

21. Name the two rays shown in Figure III. _____ & _____

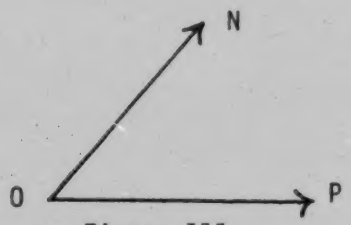


Figure III

If you have mastered all the Behavioral Objectives, take the LAP Test.

References

I. Books

1. Brown, Simon, Snader, General Mathematics Book One, Laidlaw Brothers, 1968.

2. Dolciani, Wooton, Beckenbach, Chinn, Modern School Mathematics 7, Houghton Mifflin Company, 1967.

3. McSwain, Brown, Gundlach, Cooke. Mathematics 8, Laidlaw Brothers, 1965.

II. Audio

1. Wollensak C-3404 Using a Ruler # 1

2. Wollensak C-3405 Using a Ruler # 2

3. Wollensak C-3401 Protractor: Measuring Angles

4. Wollensak C-3402 Protractor: Constructing Angles

III. Video

1. Picturol Filmstrip (Basic Angles & Experimental Geometry) FS242, 59F

2. Curriculum Films, Inc. (Vocabulary, Lines, and Angles II) FS227, 48C

3. Curriculum Films, Inc. (Postulates, Triangles, Circles) FS239. 3·8C

4. Popular Science Audio-Visuals, Inc. (The General Angle) 1184, 513

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LAP

LEARNING
ACTIVITY
PACKAGE

COUNTING
AND
COMPUTING

Ninety Six High School
Ninety Six, S.C.

GENERAL MATH 92

REVIEWED BY J.S.R.

LAP NUMBER 2

WRITTEN BY J. E. Byers
Revised by Miss McMullan

RATIONALE

Thousands of years ago primitive man undoubtedly found it necessary to devise ways of indicating quantity. Upholding a few fingers, perhaps signified the number of wolves in an attacking pack. A certain sound may have conveyed the number of sheep the wolves had killed. A crude sketch of a certain fish known to swim in huge schools possibly represented a large number.

A simple hunting and fishing existence did not require an elaborate system of numeration (system of representing numbers). However, as man's social structures developed, it was necessary for numbering concepts and other mathematical concepts to keep pace. Knowledge of this development is helpful in understanding our present-day numeration system.

In this LAP you will trace some of the history of numeration systems. You will also deal with some basic properties of numbers and operations with numbers.

Section I

BEHAVIORAL OBJECTIVES:

Upon completion of your prescribed course of study, you will be able to:

1. Given any collection, tell whether or not it is in one-to-one correspondence.
2. Change Egyptian numerals to base 10 numerals and vice-versa.
3. Change Roman numerals to base 10 numerals and vice-versa.
4. Given any number, write it in words and vice-versa.
5. Use the signs of inequality (< or >) to show relationships between numbers.

At the completion of Behavioral Objectives 4 and 5, see the instructor for additional worksheets.

Resources Section I

Objective 1:

General Math I: read pp. 69-71, Ex. 1-14, pp. 74-75

Mathematics 8: read p. 25, Ex. 1-4, p. 25

Modern School Mathematics 7: read pp. 15-17, Ex. 1-8, p. 17

Wollensak Teaching Tape: (Get wroksheet from teacher) C-3478
Sets: Equivalent, One to One (Section I)

Objective 2:

General Math I: read pp. 78-79, Ex. 1-32, pp. 79-80

Modern School Mathematics 7: read pp. 104-106, Ex. 1-13, p. 107

Wollensak Teaching Tape: (Get worksheet from teacher) C-3431
Ancient Number Systems

Objective 3:

General Math I: read pp. 80-83, Ex. 1,5,9,13,17,21,25,28,31,34,37, 41,45,49,53,57,60,63,66,68, p. 83

Modern School Mathematics 7: read pp. 107-110, Ex. 1-20, pp. 111

Objective 4:

General Math I: read pp. 86-88, Ex. 1-10, 33-42, p. 88

Modern School Mathematics 7: read pp. 120-123, Ex. 1-12, p. 123

Objective 5:

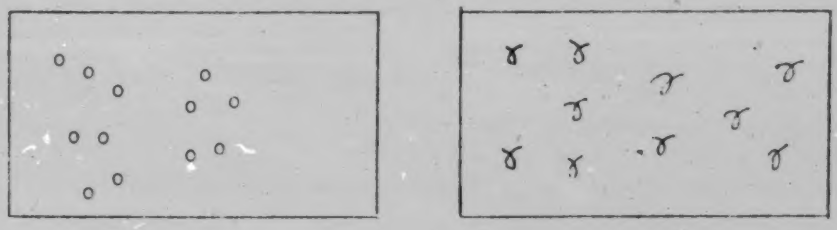
General Math. I: read pp. 97-98, Ex. 13-24, p. 99

SELF-EVALUATION

In exercises 1 and 2, indicate, in each case, whether the given collections are in one-to-one correspondence.

1

1.



2. The one-inch line segments of a foot ruler and the one-hour divisions of a clock.

Given: | =1, ∩ = 10, 𓍢 = 100, express the following in Egyptian numerals.

2

3. 34

4. 222

5. 111

6. 212

Express the following in our system of numeration.

3

7. XXXVI

8. XXXIV

9. CLXV

10. $\overline{\text{CXLIV}}$

Express the following in Roman numerals.

3

11. 24

12. 44

13. 155

14. 1,064

Write the numeral for each of the following number names.

15. three hundred,ninety-six

4 16. ten thousand, sixty-four

17. seventeen thousand, three hundred five

18. two hundred thousand, three hundred eight

5 Use the signs of inequality (< or >) to show the relationship between the numbers indicated in each pair.

(19) 14, 7 (20.) 12, 11 (21) 9,11 (22) 13, 10 (23) 8, 7

Section II

BEHAVIORAL OBJECTIVES:

Upon completion of your prescribed course of study, you will be able to:

6. Illustrate the following properties of whole numbers on a number line.

   a. addition
   b. subtraction
   c. multiplication
   d. division

7. Given any mathematical statement, tell which of the following properties are being used.

   (a) Commutative Law of Addition
   (b) Associative Law of Addition
   (c) Commutative Law of Multiplication
   (d) Associative Law of Multiplication

8. Given any mathematical statement, use the distributive law of multiplication over addition for the set of whole numbers.

9. Given any mathematical statement perform the operations using the special properties of zero and one.

10. Define the following:

    (a) Commutative Law of Addition
    (b) Associative Law of Addition
    (c) Place Value
    (d) Number Line
    (e) Commutative Law of Multiplication
    (f) Associative Law of Multiplication
    (g) Distributive Law of Multiplication over Addition
    (h) <
    (i) Numeration System
    (j) Binary System

Objective 6:

General Math I: read pp. 97-98, Ex. 1-2, p. 98; read pp. 100-103, Ex. 1-12, p. 103; read pp. 104-105, Ex. 1-20, p. 105; read pp. 106-107, Ex. 1-8, p. 107; read pp. 110-111, Ex. 1-16, p. 111

Mathematics 8: read pp. 48 & 59, 64-65, Ex. 1-6, p. 65

Modern School Mathematics 7: read pp. 290-300, Ex. 1-20, pp. 300-301

Wollensak Teaching Tape: (Get worksheet from teacher)
C-3331 Directed Numbers: Addition
C-3332 Directed Numbers: Subtraction
C-3333 Directed Numbers: Multiplication
C-3334 Directed Numbers: Division

Objective 7:

General Math I: read p. 101, Ex. 13-18, p. 103; read p. 102, Ex. 19-24 p. 103; read p. 106-107, Ex. 9-16, pp. 107-108

Mathematics 8: read p. 111, Ex. 1-4, p. 111

Modern School Mathematics 7: read pp. 50-54, Ex. 1-10 pp. 54-55, read pp. 72-74, Ex. 1-8, p. 74; read p. 40-42, Ex. 1-6, p. 43

Wollensak Teaching Tape: (Get worksheet from teacher)
C-3454 Associative Property
C-3453 Commutative Property

Objective 8:

General Math I: read pp. 108-109, Ex. 1-10 p. 110

Mathematics 8: read p. 111, Ex. 1-4, p. 111

Modern School Mathematics 7: read pp. 89-92, Ex. 7-22, p. 93

Objective 9:

General Math I read p. 112, Ex. 1-20, p. 113

Modern School Mathematics 7: read pp. 84-88, Ex. 1-26, pp. 88-89

Objective 10: read p. 116

SELF-EVALUATION II

I. Compute each of the following and tell whether each statement is true of false.

_____ 1. $7 - 2 = 2 - 7$

_____ 2. $12 + 0 = 12$

_____ 3. $12 \times 0 = 12$

_____ 4. $12 \times 1 = 12$

II. Illustrate each of the following on a separate number line.

5. $3 + 4$

6. $4 - 3$

7. 3×4

8. $9 \div 3$

III. Name the principle illustrated in each of the following statements.

9. $3 \times 4 = 4 \times 3$

10. $(3 + 5) + 4 = 3 + (5 + 4)$

11. $3 \times (5 + 4) = (3 \times 5) + (3 \times 4)$

12. $(6 \times 8) \times 9 = 6 \times (8 \times 9)$

IV. Use the distributive law to perform the following operations.

13. $2 \times (3 + 4)$

14. $5 \times (6 + 3)$

15. $9 \times (2 + 4)$

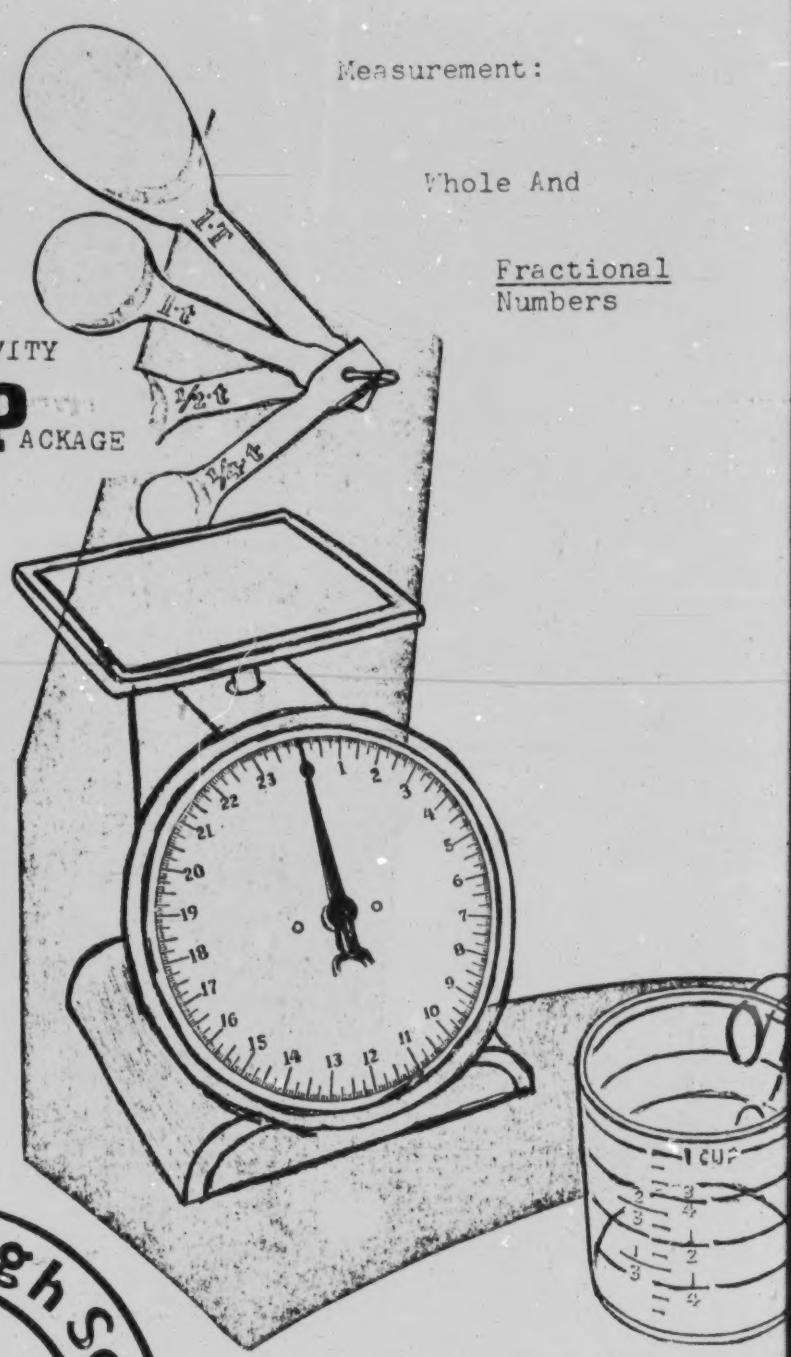
LAP

LEARNING ACTIVITY PACKAGE

Measurement:

Whole And

Fractional
Numbers



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Ninety Six High School
Ninety Six, S.C.

GENERAL MATH I 92

LAP NUMBER 3

REVIEWED BY _____

WRITTEN BY C Byers

11872

RATIONALE

The primary specific purposes of these LAPs are to develop better understanding of the measuring process, of the meaning of fractions, and the properties pertaining to operations with fractions. In this manner, the students also develop greater facility in performing operations with fractions. Also the concepts relating to fractions are extended to apply to operations with mixed numbers.

SECTION I:

Measurement: Whole and Fractional Numbers

Behavioral Objectives

After the completion of your prescribed course of study, you will be able to:

1. Given any list of measurements, distinguish direct from indirect measurements.
2. Given any list of standard units of measure, convert measurements expressed in one unit to other units.
3. Given any list of numbers and what measures they represent, tell whether they are approximate or exact.
4. Given specific information, establish the meaning of a fraction.
5. Given any list of fractions, reduce them if possible.
6. Given any list of fractions, distinguish whether they are equal.
7. Given any list of fractions, add, subtract, multiply, or divide them. The operation to be used will be specified by the teacher.

* At the completion of behavioral objectives 3 and 7, see the instructor for additional worksheets.

Resources

I. Reading and problems

(a) General Math I #1 and 2, pp. 119-122, ex. 1-38 pp. 122-123: #3, pp. 123-125, ex. 1-26 pp. 125-126: #4, pp. 127-128, 130-131 ex. 1-22 pp. 128-129, ex. 1-24 p 131 #5, p. 134, ex 1-28 p. 134: #6, pp. 132-133, ex. 1-30 p. 133: #7, pp. 135-152, ex. 1-28 pp. 137-138, ex. 1-14 p. 140, ex. 1-28 p. 142, ex. 1-36 p.146, ex. 1-16 p. 149, ex. 1-24 pp. 151-152.

(b) Mathematics 8 (Junior High School), #1-2 : #3, : #4, p. 90, ex. 1-3, p.90: #5 and 6, pp. 94-95, ex. 1-5 p. 95: #7, pp. 98-99, pp. 104-105, pp. 106-107, pp. 111, ex. 1-9 p. 99, ex. 1-9 p. 105 ex. 1-7 p. 107 ex. 1-5 p. 111

(c) Modern School Mathematics 7

land 2, : #3, p. 383-385, ex. 1-10 p. 385: #4, pp. 326-329, ex. 1-14 p. 330: #5, pp. 330-335, ex. 1012 p. 335: #7, pp. 336-340, pp. 354-358 pp. 349-353, ex. 1-18, p340, ex.1-24, p358, ex. 1-20 p. 353 pp. 354-358, pp. 249 -353, ex. 1-18, p340, ex. 1-24 pp 358, ex. 1-20 p358

Self-Evaluation Section I

In exercise 1-6 complete the statements by correctly filling in the blanks.

1. 3 mi.=_____ yd.
2. 96 fl. oz.=_____ pt.
3. 12 pk. =_____bu.
4. 7 ft.2in.=_____ in.
5. 6gal.=_____ pt.
6. 21,120ft.=_____ mi.

In exercises 7-10 tell whether the number used in each case is exact(arrived by counting) or approximate(arrived by measuring).

7. Steve is 13 years old.
8. Jean owns a 21 inch bicycle.
9. There were 15 people at the party.
10. We made five stops during the trip.

In exercises 11-14 replace the question marks with numbers so that the statements becomes true.

11. $\frac{7}{8} = \frac{?}{24}$ 12. $\frac{18}{48} = \frac{?}{8}$ 13. $\frac{8}{1} = \frac{?}{10}$ 14. $\frac{5}{5} = \frac{?}{25}$

In exercises 15-18 reduce each fraction to lowest terms

15. $\frac{8}{24} =$ 16. $\frac{9}{24} =$ 17. $\frac{12}{72}$ 18. $\frac{22}{14}$

Add as indicated.

19. $\frac{1}{7} + \frac{2}{7} =$ 20. $\frac{3}{7} + \frac{2}{21} =$

Subtract as indicated

21. $\frac{8}{7} - \frac{5}{7} =$ 22. $\frac{11}{12} - \frac{5}{6}$

Multiply or divide as indicated.

23. $\frac{7}{8} \times \frac{5}{6} =$ 24. $\frac{7}{9} \times \frac{4}{5}$ 25. $\frac{2}{7} \div \frac{3}{5} =$ 26. $3 \div \frac{1}{2} =$

SECTION II

Behavioral Objectives

After the completion of your prescribed course of study, you will be able to:

8. Given any list of fractional numbers, use the factoring method in reducing, multiplying, and dividing them.
9. Given any list of improper fractions, express them as mixed numbers and vice-versa.
10. Given any list of mixed numbers, add and subtract them.
11. Given any list of mixed numbers, multiply and divide them.
12. Given any list of measurements, express them in other specified units of measure.
13. Define the following:
    a. measurement
    b. proper fractions
    c. like fractions
    d. lowest common
    e. the commutative law for multiplication
    f. the associative law for addition
    g. the identity law for multiplication
    h. the identity law for addition
    i. the inverse law for multiplication

Resources

I. Reading and Problems

(a) General Math I

#8, pp. 153-155, ex 1-38,p. 155: #9, pp. 156-157, ex. 1-30 p. 158: #10, pp. 159-160, ex. 1-28 p. 160: # 11, pp. 161-163 ex 1-42 pp. 163 -164: #12, p.165 ex. 1-30 pp. 165-166 # 13, p. 168

(b) Mathematics 8 (Junior High School)

#8, : #9, pp. 122-123, ex. 1-8 p123: #10,#11, p. 124, ex 1-14 p. 125, ex. 1-8 p. 363: #12 #13

(c) Modern School Mathematics 7

#8 : #9, 345-348, ex. 1-18 p. 348: #10, ex. 19-30: #11, ex. 13,14, 15, 21-24 pp. 353-354 ex. 13-18 p. 358: #12 #13

(d) Wollensak Teaching Tapes

See teacher for worksheet to be used with each tape.

The Commutative Property	C-3453
The Associative Property	C-3454
Concept of Zero and One	C-3072
Identity Elements	R-3459
The Inverse Elements	C-3457

Self-Evaluation Section II

Use the factoring law to solve the following.

1. $\frac{2}{7} + \frac{9}{7}$ 2. $\frac{2}{5} \times \frac{3}{4}$ 3. $\frac{12}{33} + \frac{36}{22}$

4. $\frac{5}{15} + \frac{21}{20}$ 5. $\frac{3}{5} \times \frac{4}{20}$

Express the following mixed numbers as improper fractions and vice-versa.

6. $\frac{3}{2}$ 7. $\frac{215}{6}$ 8. $\frac{20}{7}$ 9. $3\frac{2}{5}$ 10. $4\frac{3}{11}$ 11. $25\frac{1}{5}$

Add, subtract, multiply, or divide the following as indicated.

12. $5\frac{3}{4} - 3\frac{1}{2}$ 13. $9\frac{2}{3}$ 14. $9\frac{1}{2} \times 2\frac{1}{7}$

15. $2\frac{1}{4} + 3\frac{1}{3}$ 16. $8\frac{1}{3} - 6\frac{1}{2}$ 17. $4\frac{1}{3} + 2\frac{1}{2}$

18. $\frac{2}{3} + 5\frac{3}{4}$ 19. $3\frac{1}{2} \times 4\frac{1}{3}$ 20. $6\frac{1}{4} + 3\frac{1}{3}$

Complete the following so that they are correctly expressed.

21. $\frac{2}{3}$ yd. = _____ ft.

22. 350 lb. = _____ cwt.

23. $\frac{1}{8}$ pt. = _____ qt.

24. $8\frac{1}{8}$ qt. = _____ pt.

25. 40 fl. oz. = _____ pt.

26. $8\frac{7}{8}$ ft. = _____ in.

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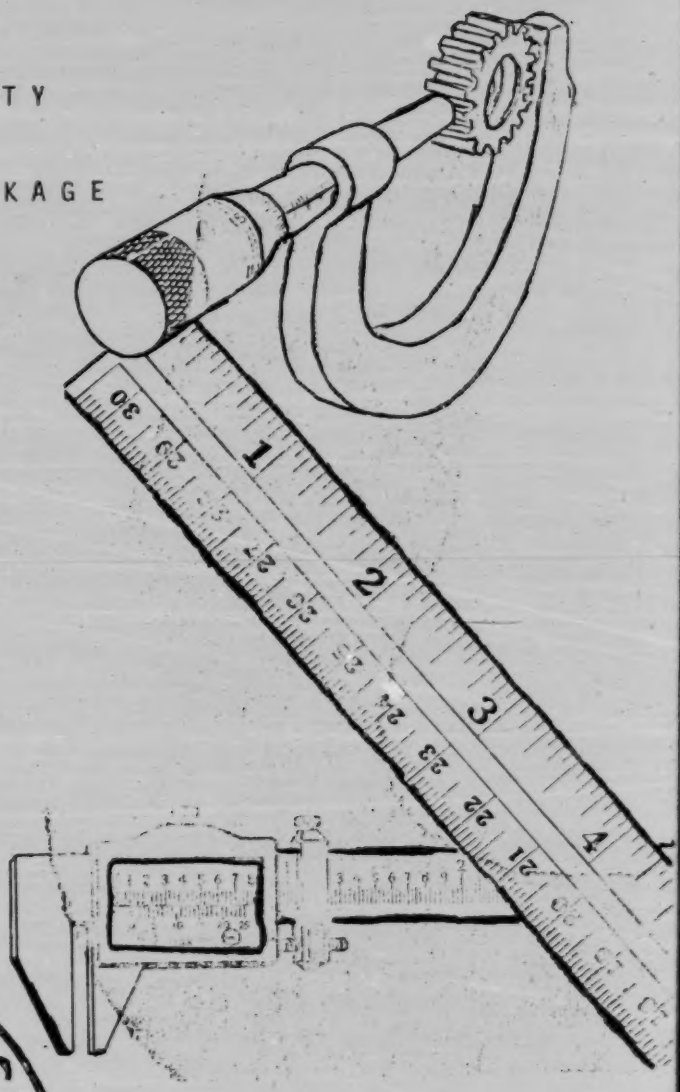
LAP

LEARNING ACTIVITY PACKAGE



MEASUREMENT: DECIMAL NOTATION

Ninety Six High School
Ninety Six, S.C.

Generc1 Math 1 - 92

REVIEWED BY

LAP NUMBER 4

WRITTEN BY J. E. Byers

4 86 12

RATIONALE

Many occupations in science and industry require a thorough knowledge of measurement. The physicist, chemist, laboratory technician, precision machine operator, parts inspector, and engineer perform a vast number of precise measurements in their work. Many of these measurements are performed with instruments which are constructed with scales based on the number ten. In such cases, it is convenient to represent fractions of units of measurement with decimal (base ten) notation.

In this LAP the student's understanding of the measuring process and the use of decimal notation to represent fractional numbers will be extended. The student will also practice reading certain precision measuring instruments along with comparing the metric system of measurement to the English system of weights and measures.

SECTION 1

Behavioral Objectives

At the completion of your prescribed course of study, you will be able to:

1. Given any list of decimal fractions, extend them by showing the place value of each digit.

2. Given any list of decimal fractions, add, subtract, multiply, and divide them.

3. Given any list of common fractions, express them in decimal form.

4. Given any list of numbers, round them to a given place.

5. Given any list of measurements, state

   a. the precision of the measurement
   b. the greatest possible error

6. Given any list of measurements, determine the accuracy.

* At the completion of behavioral objectives 3 and 6, see the instructor for an additional worksheet.

RESOURCES

Reading and Problems

1. General Mathematics I: #1, pp. 171-175, ex. 1-58 pp. 175 & 176: #2, pp. 177-179, ex. 1-28 pp. 179 & 180: #3, pp. 180-181, ex. 1-20 pp. 181 & 182: #4, pp. 182-184, ex. 1-28 pp. 184 & 185: #5, pp. 185-187, ex. 1-16 pp. 187 & 188: #6 pp. 188-190, ex. 1-16 p. 190.

2. Junior High School Mathematics 8: #1, pp. 140-141, ex. 1-4 p. 141: #2, p. 130, ex. 1-16 p. 131: #3, pp. 134-135, ex. 1-6 p. 135: #4, ____: #5, pp. 164-165, ex. 1-16 p. 165: #6, p. 166, ex. 1-9 p. 167.

3. Modern School Mathematics 7: #1, pp. 120-122, ex. 1-20, pp. 123 & 124: #2, pp. 379-381, ex. 1-32 pp. 381 & 382, pp. 393-395, ex. 1-40 p. 396, pp. 397-400, ex. 1-50 pp. 400, 401, & 402: #3 ____: #4, pp. 383-385, ex. 1-10 p. 385: #5, #6 ____.

SELF-EVALUATION 1

Represent each of the following numbers as a statement which clearly shows the place value.

1. 0.5

2. 0.75

3. 15.23

4. 4.11771

Perform the operation indicated in each of the following:

5. 69.2 + 331.9

6. 658.6 - 39.8

7. 26.78 x 5.2

8. 2.62 ÷ 655

Express each of the following common fractions in decimal form.

9. $\frac{3}{25}$

10. $\frac{7}{40}$

11. $\frac{2}{9}$

12. $\frac{7}{33}$

Round each of the following to the nearest whole quantity indicated in parentheses.

13. 425 (hundred)

14. 425 (ten)

15. 0.425 (tenth)

16. 136.5 (unit)

State the precision of measurement and the greatest possible error in the following.

17. 4 in.

18. 0.07 ft.

19. 7.8 ft.

20. 0.002 in.

State which measurements are more precise.

21. 3 in. or 104 in.

22. 0.08 ft. or 0.1 ft.

23. 15.2 yd. or 1.02 yd.

24. 0.005 in. or 1 in.

25. 6.7 ft. or 5.07 ft.

26. 15.2 yd. or 15.02 yd.

SECTION II

Behavioral Objectives

At the completion of your prescribed course of study, you will be able to:

7. Given any list of measurements, add and subtract them.

8. Given Vernier caliper settings, determine the measurement readings.

9. Given micrometer caliper settings, determine the measurement readings.

10. Given any list of measurements, determine the upper and lower limits.

11. Given any list of metric units, express them in a given metric unit.

12. Given any list of metric units, express them in the English system and vice-versa.

13. Define the following:

    a. rounded number
    b. precisions of measurement
    c. greatest possible error of a measurement
    d. relative error of a measurement
    e. caliper
    f. Vernier scale
    g. tolerance
    h. meter
    i. metric system
    j. decigram

RESOURCES

Reading and Problems

1. General Mathematics I: #7, pp. 190-192, ex. 1-24 pp. 192 - 193: #8, pp. 193-195, ex. 1-12 pp. 195-196: #9, pp. 197-198, ex. 1-12 p. 199: #10, pp. 200-201, ex. 1-22 p. 201: #11, pp. 202-204, ex. 1-18, pp. 204 & 205: #12, pp. 205-206,ex. 1-22 pp. 206 & 207: #13, p. 210.

2. Junior High School Mathematics 8: #7, pp. 172-173, ex. 1-15 p. 173: #8, #9, #10, #11, #12, #13, ___.

3. Modern School Mathematics 7: #7, #8, #9, #10, #11, #12, #13, ____.

* At the completion of behav. obj. 10 and 12, see the instructor for additional worksheets.

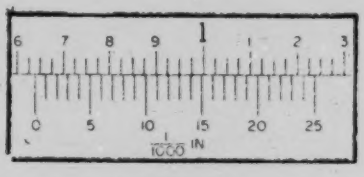
SELF-EVALUATION 2

Perform the indicated operations in the following:

1. 25.42" + 148.5"
2. 184.7' - 76.95'
3. 25.25' - 15.0'
4. 99.90" + 123.000"

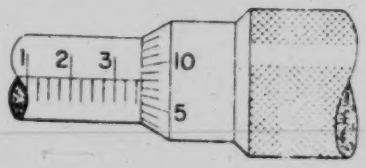
Record the Vernier setting in the diagram.

5.



Record the micormeter setting in the diagram.

6.



Determine the upper and lower limit for each of the following.

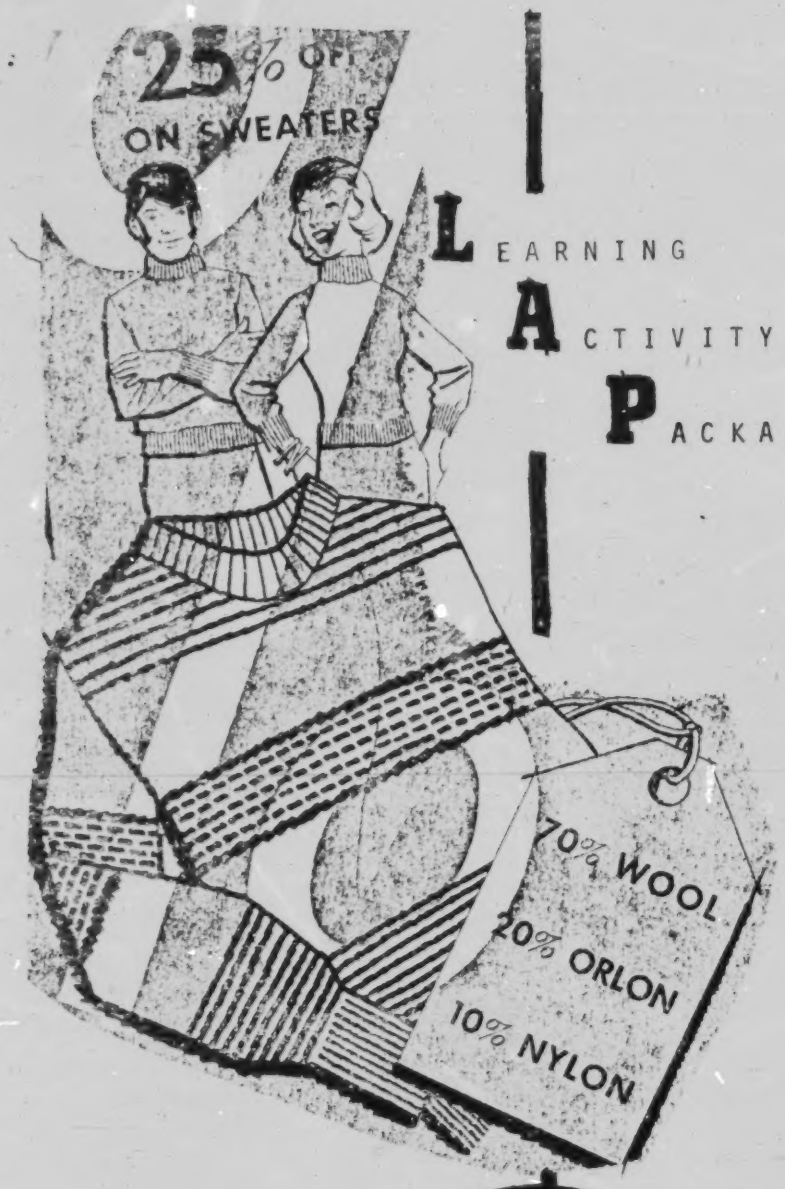
7. 0.825" ± 0.005"
8. 7.615" + 0.003"

Express each of the following metric measurements in the units indicated in parentheses.

9. 250 cm. (meters)
10. 0.346 dkg. (decigrams)
11. 250 m. (centimeters)
12. 5.78 hg. (kilograms)

Express each metric measurement in the English units indicated in parentheses.

13. 2.5 cm. (inches)
14. 86 kg. (pounds)
15. 5 km. (miles)
16. 67 g. (ounces)
17. 1 in. (centimeters)
18. 3 ft. (decimeters)
19. 2 yd. (meters)
20. 39.37 in. (meters)



LAP

LEARNING ACTIVITY PACKAGE

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PER CENT

Ninety Six High School
Ninety Six, S.C.

General Math I - 92

REVIEWED BY J. Ritchie

LAP NUMBER 5

WRITTEN BY J. E. Byers

5/8/72

RATIONALE

The language of per cent is widely used in many everyday situations to express comparisons between quantities. An advertisement may claim that 90 per cent of all housewives use a certain soap. The quarterback of a football team may be considered very good because he has completed 70 per cent of all his pass attempts.

Because such uses of per cent occur daily, it is important to understand what per cent means, why it is useful, and how it is used.

This LAP is designed to improve the students' understanding of per cent notation as merely another form for representing numbers and to employ per cent notation to further explain the accuracy of a measurement.

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Express any ratio in fractional form, as a decimal and as a per cent.

2. Express any per cent as a decimal fraction and vice versa.

3. Express a common fraction as a per cent.

4. Find the per cent of a number.

5. Find the per cent one number is of another.

6. Define, explain, or identify the following:

   a. ratio
   b. like fractions
   c. unlike fractions
   d. division meaning of a fraction
   e. per cent
   f. %
   g. greatest possible error
   h. relative error of a measurement
   i. per cent of error of a measurement
   j. significant digits

At the completion of behavioral objectives 3, 4, and 5, ask the instructor for worksheets.

RESOURCES

Objective 1:

General Math I: Read pp. 213-214, ex. 1-24 p. 215.
Read pp. 216-217, ex. 1-28 pp. 217-218.
Read pp. 218-219, ex. 1-14 pp. 219-220.

Mathematics 8: Read pp. 231-232, ex. 1-7 p. 232.

Modern School Mathematics 7: Read pp. 464-467, ex. 1-10 p. 467.

Objective 2:

General Math I: Read pp. 221-222, ex. 1-36 p. 222.
Read pp. 223-224, ex. 1-24 p. 224.

Mathematics 8: Read pp. 239-240, ex. 1-5 p. 239.

Objective 3:

General Math I: Read pp. 224-226, ex. 1-20 p. 226.

Mathematics 8: Read p. 242, ex. 1-6 p. 242.

RESOURCES CONTINUED ON FOLLOWING PAGE.

RESOURCES (cont')

Objective 3 (cont'):

Modern School Mathematics 8: Read pp. 468-470, ex. 13-22 p. 471.

Objective 4:

General Math I: Read pp. 227-228, ex. 1-30 pp. 228-229.

Mathematics 8: Read pp. 240-241, ex. 1-12 p. 241.

Modern School Mathematics 7: Read pp. 473-475, ex. 9-14 p. 475.

Objective 5:

General Math I: Read pp. 229-230, ex. 1-22 pp. 230-231.

Objective 6:

General Math I: Read p. 238.

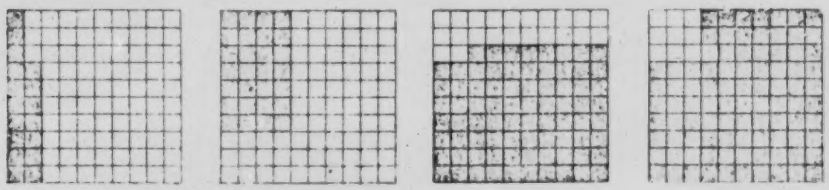
SELF-EVALUATION

Express each of the following ratios in fractional form and reduce to lowest terms.

(1) 5 to 10 (2) 10 to 25 (3) 8 to 20 (4) 18 to 50

For each of the following diagrams, state the ratio of the number of shaded squares to the total number of squares as a per cent.

(5) (6) (7) (8)



Express each of the following per cents as a decimal.

(9) 25% (10) 76% (11) 5% (12) 250%

Express each of the following decimals as a per cent.

(13) 0.16 (14) 0.667 (15) 3.05 (16) 0.005

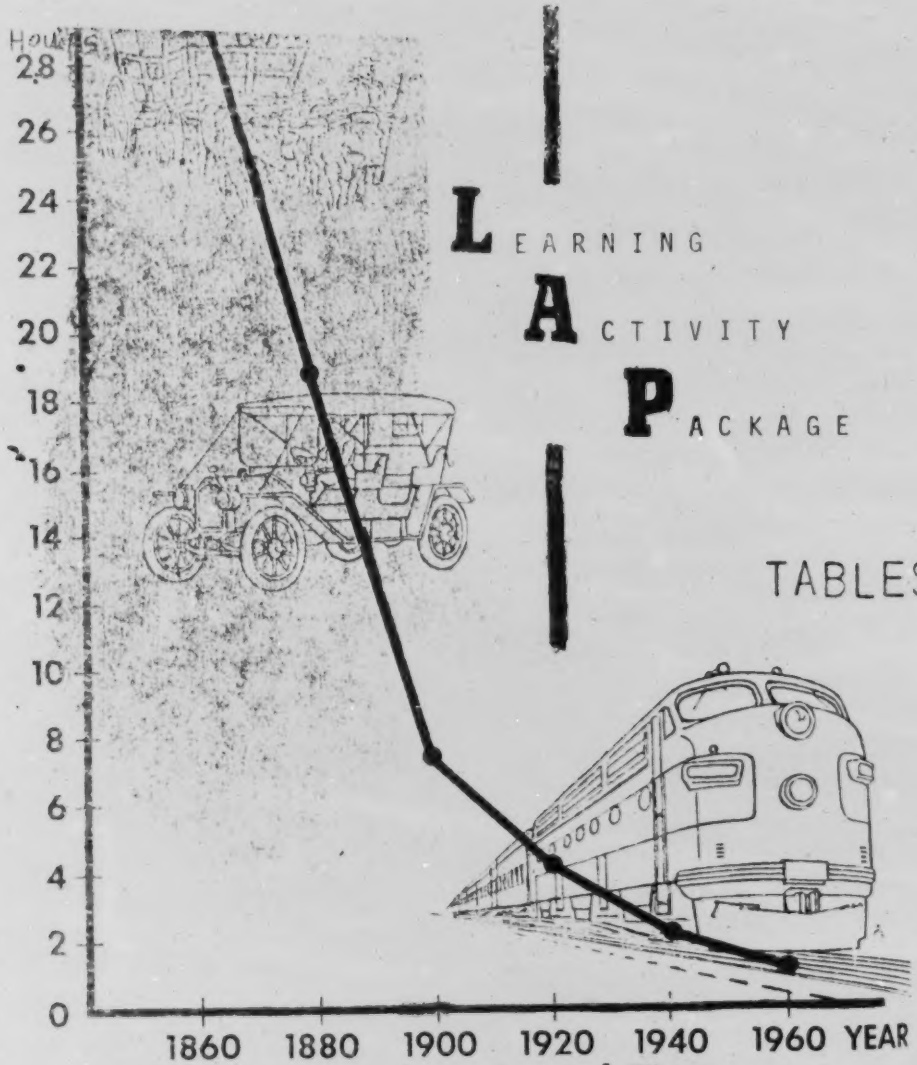
Express each of the following common fractions as a per cent.

(17) 1/2 (18) 3/2 (19) 8/25 (20) 1/3

(21) Find 25% of 360.

(22) What per cent of 100 is 20?

(23) What per cent of 200 is 50?



Decreasing Travel Time
Needed to Cover 100 Miles on Land

LAP

LEARNING ACTIVITY PACKAGE

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TABLES AND GRAPHS

Ninety Six High School
Ninety Six, S.C.

General Math I

REVIEWED BY J. S. Ritchie

LAP NUMBER 6

WRITTEN BY J E Byers

6 of 12

RATIONALE

The primary specific objectives of this LAP are to acquaint the students with the frequency table as a method of organizing statistical data and with the mode, median, and the mean as statistical measures which summarize a set of data. Also, this LAP is intended to develop a better understanding of reading, interpreting, and making various kinds of statistical graphs. In this context, the students are given an opportunity to gain additional practice in the fundamental arithmetic operations.

SECTION I

Behavioral Objectives:

At the completion of your prescribed course of study, you will be able to:

1. Given any list of numbers, scores, etc., determine the mode.
2. Given any set of data, determine the median.
3. Given any set of data, determine the mean.
4. Given any set of data, make a frequency table, find the mode, median, and the mean.
5. Given any bar graph, read it by interpreting the data.
6. Given specific data, make a vertical or horizontal bar graph.

RESOURCES

Objective 1:

General Math I: Read pp. 241-245, ex. 1-8 pp. 245-246.

Objective 2:

General Math I: Read pp. 246-248, ex. 1-12 pp. 248-249.

Objective 3:

General Math I: Read pp. 250-251, ex. 1-14 pp. 251-253.

Junior High Mathematics 8: Read pp. 302-303, ex. 1-8.p. 303.

Objective 4:

General Math I: Read pp. 253-256, ex. 1-6 pp. 257-258.

Junior High Mathematics 8: Read pp. 298-299, ex. 1-3 p. 299.

Modern School Mathematics 7: Read pp. 490-493, ex. 1-18 pp. 493-494.

Objective 5:

General Math I: Read pp. 259-261, ex. 1-20 pp. 262-263.

Objective 6:

General Math I: Read pp. 263-266, ex. 1-8 pp. 266-268.

Junior High Mathematics 8: Read pp. 304-305, ex. 1-4 p. 305.

Modern School Mathematics 7: Read pp. 484-486, ex. 1-4, 5a, 6a, 7-8 pp. 489-490.

SELF-EVALUATION 1

For the set of data 2,3,3,5,7,7,7, and 10 find each of the following:

1. mode

2. median

3. mean

For the set of test scores 94,93,86,86,86, 80,80,80,80,78,78,78,78,78,78, 78,60, and 60, perform each of the following.

4. Make a frequency table.

5. find the mode

6. find the median

7. find the mean

Construct a vertical or horizontal bar graph of the following data. Let each segment of the hourly earnings sclae represent $.25.

8. AVERAGE HOURLY EARNINGS OF PRODUCTION WORKERS IN THE UNITED STATES.

Year	Average Hourly Earnings
1950	$1.44
1952	1.65
1954	1.78
1956	1.95
1958	2.11
1960	2.26
1962	2.39

SECTION 2

Behavioral Objectives:

At the completion of the prescribed course of study, you willbe able to:

7. Given any broken-line graph, interpret the data.
8. Given any set of data, make a broken-line graph.
9. Given any circle graph, interpret the data.
10. Given any set of data, make a circle graph.
11. Given any pictograph, interpret the data.
12. Given any set of data, make a pictograph.

RESOURCES

Objective 7:

General Math I: Read pp. 269-271, ex. 1-16 pp. 272-273.

Objective 8:

General Math I: Read pp. 273-275 ex. 1-8 pp. 276-277.

Junior High School Mathematics 8: Read pp. 308-309, ex. 1-6, p. 309..

Modern School Mathematics 7: Read pp. 488-489, ex. 9-12 p. 490.

Objective 9:

General Math I: Read pp. 277-279, ex. 1-16 pp. 279-280.

Objective 10:

General Math I: Read pp. 282-285, ex. 1-10 pp. 285-286.

Junior High School Mathematics 8: Read pp. 306-307, ex. 1-5 p. 307.

Modern School Mathematics 7: Read pp. 482-484, ex. 16, 26, p. 306.

Objective 11:

General Math I: Read pp. 287-289, ex. 1-8 p. 290.

Objective 12:

General Math I: Read pp. 287-289, ex. 9-10 p. 291.

Modern School Mathematics 7: Read pp. 487-488, ex. 5b & 6b, p. 489.

SELF-EVALUATION 2

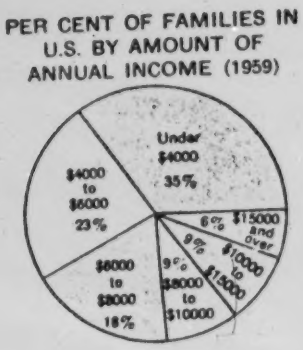
1. Make a broken-line graph from the following information.

GROWTH OF THE UNITED STATES IN LAND AREA (to the nearest 10,000 sq. mi.)					
Square miles	860,000	1,750,000	2,970,000	2,970,000	3,560,000
Year	1800	1840	1880	1920	1960

2. What is the subject of the graph at the right?

3. What is the name of this kind of graph?

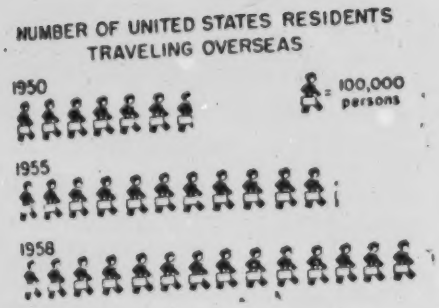
4. Does the graph account for 100% of the families?


PER CENT OF FAMILIES IN U.S. BY AMOUNT OF ANNUAL INCOME (1959)
Under $4000 35%
$4000 to $6000 23%
$6000 to $8000 18%
$8000 to $10000 9%
$10000 to $15000 9%
$15000 and over 6%

5. What is the name for this type of graph at the right?

6. What quantity does each symbol represent?

7. How many United States residents traveled overseas in 1950? In 1958?



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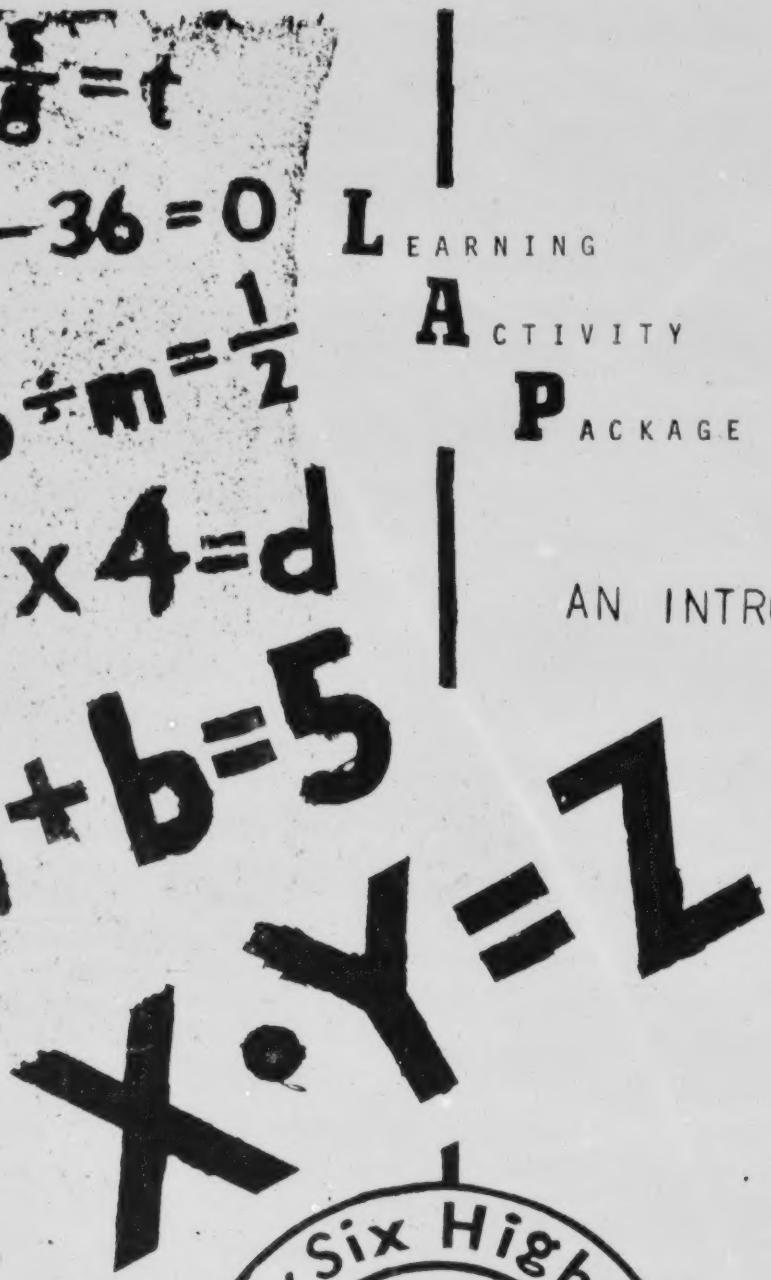
LEARNING ACTIVITY PACKAGE

AN INTRODUCTION TO ALGEBRA



Ninety Six High School
Ninety Six, S.C.

General Math I

REVIEWED BY

LAP NUMBER 7

WRITTEN BY J. E. Byers

RATIONALE

Algebra is often, and very aptly, referred to as the shorthand of mathematics and science. It can be used to make statements and give instructions in a very brief form. This brevity is accomplished by the systematic use of symbols. Statements using the symbols of algebra can be translated into words and vice-versa. The primary objectives are to introduce the students to algebra as a logical extention of the concepts of arithmetic and to familiarize the students with customary algebraic symbolism and vocabulary.

Section I

Behavioral Objectives

At the completion of your prescribed course of study, you will be able to:

1. Given any symbols, indicate addition and subtraction of the symbols.
2. Given specific values of the symbols, find the value of the indicated addition or subtraction.
3. Given any symbols, indicate multiplication and division of the symbols.
4. Given specific values of symbols, find the value of the indicated multiplication or division.
5. Find the value of any expression which indicates more than one operation by using the rule for the order of operations.
6. Given any mathematical word statement, translate it into algebraic symbols.
7. Given any algebraic symbol, translate it into a word statement.
8. Given any mathematical sentence, translate it into an algebraic equation.
9. Given any mathematical rule, state it as a formula.

RESOURCES

Objective 1:

General Math I: Read pp. 297-299, Ex. 1-8 p. 299.

Objective 2:

General Math I: Read pp. 297-299, Ex. 9-28 p. 299.

Objective 3:

General Math I: Read pp. 300-301, Ex. 1-8 p. 301.

Objective 4:

General Math I: Read pp. 300-301, Ex. 9-22 p. 302

Objective 5:

General Math I: Read pp. 302-304, Ex. 1-34, pp. 304-305

Objective 5: (cont.)

Jr. High School Mathematics 8: Read pp. 26-27, Ex. 1-23, p. 27

Objective 6:

General Math I: Read pp. 305-307, Ex. 1-26 pp. 307-308.
Jr. High School Mathematics 8: Read pp. 84-85, Ex. 1-22, p. 85

Objective 7:

General Math I: Read pp. 308-309, Ex. 1-24, p. 310

Objective 8:

General Math I: Read pp. 310-311, Ex. 1-18, pp. 311-312
Jr. High School Mathematics I: Read pp. 86-87, Ex. 1-10, p. 87

Objective 9:

General Math I: Read pp. 312-314, Ex. 1-28, pp. 314-316.

SELF-EVALUATION 1

Using the variables indicated, express the following in symbols.

1. The sum of any number x and any number y.

2. Any number y subtracted from any number u.

3. The product of 3 and t.

4. Any number r divided by any number s.

If m = 2, r = 3, q = 5, b = 10, and c = 5, find the value of each of the following:

5. $m \div r$

6. $q - m$

7. bc

8. $\frac{b}{c}$

Following the rule for order of operations, find the value of each of the following:

9. $5 \cdot 3 + 2$

10. $6 \cdot \frac{1}{2} - 2$

Translate each of the following into two different word expressions.

11. $b + 4$

12. $8r$

13. A number diminished by 7 is equal to 96.

14. Three fifths of a number is 41.

Use the letters indicated in parentheses to state the following rule as a formula.

15. The perimeter (P) of a rectangle is equal to twice the length (l) added to twice the width (w).

BEST COPY AVAILABLE

Behavioral Objectives

At the completion of your prescirbed course of study, you will be able to:

10. Use the formula A = LW to find the area of a rectangle with the length and width given.

11. Use the formula $A = s^2$ to find the area of a square with a given side.

12. Use the formula A = bh to find the area of a parallelogram with a given base and height.

13. Use the formula $A = \frac{1}{2}bh$ to find the area of a triangle with a given base and height.

14. Use the formula $A = \frac{1}{2}h(b_1 + b_2)$ to find the area of a trapezoid with the height and both bases given.

15. Use the formula $A = \pi r^2$ to find the area of a circle with the radius or diameter given. Use $\pi = 3.14$.

16. Use the formula V = LWh to find the volume of a rectangular solid with the length, width, and height given.

17. Use the formula $V = \pi r^2 h$ to find the volume of a cylinder with the radius or diameter and the height given. Use $\pi = 3.14$.

18. Use the formula V = 1/3 Bh to find the volume of a pyramid with the area of the base and the height given.

19. Use the formula $V = 1/3\ \pi r^2 h$ to find the volume of a cone with the radius or diameter and the height given. Use $\pi = 3.14$.

20. Use the formula $V = 4/3\ \pi r^3$ to find the volume of a sphere with the radius or diameter given. Use $\pi = 3.14$.

RESOURCES

Objective 10:

General Math I: Read pp. 316-320, Ex. 1-4, p. 320
Jr. High School Mathematics: Read p. 210, Ex. 1-6, p. 210
Modern School Mathematics: Read pp. 437-439.

Objective 11:

General Math I: Read p. 317, Ex. 5-8, p. 320

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Objective 11: (cont)

Jr. High School Mathematics: Read p. 439

Objective 12:

General Math I: Read p. 318, Ex. 9-12, p. 320
Jr. High School Mathematics 8: Read p. 214, Ex. 1-5, p. 214
Modern School Mathematics: Read p. 440.

Objective 13:

General Math I: Read p. 319, Ex. 13-16, pp. 320-321
Modern School Mathematics: Read p. 441, Ex. 4-7 p. 442
Jr. High School Mathematics 8: Read pp. 212-213, Ex. 1-11, p. 213

Objective 14:

General math I: Read p. 319, Ex. 17-20, p. 321
Modern School Mathematics; Read p. 442.
Jr. High School Mathematics: Read p. 215, Ex. 1-8, p. 215

Objective 15:

General Math I: Read p. 320, Ex. 21-24, p. 321
Modern School Mathematics: Read pp. 444-446, Ex. 5-8, p. 447.
Jr. High School Mathematics: Read pp. 216-217, Ex. 1- 10, p. 217

Objective 16:

General Math I: Read pp. 322-325, Ex. 1-4, p. 325
Modern School Mathematics: REad pp. 454-456, Ex. 1-4, p 457.
Jr. High School Mathematics: Read p. 218-219 Ex. 1-6, p. 219

Objective 17:

General Math I: Read p. 323, Ex. 5-8, p. 326
Jr. High School Mathematics 8: Read p. 222, Ex. 1-10, p. 223

Objective 18:

General Math I: Read p. 324, Ex. 9-12, p. 326
Jr. High School Mathematics: Read p. 220, Ex. 1-4, p. 220

Objective 19:

General Math I: Read p. 324, Ex. 13-16, p. 326.
Jr. High School Mathematics 8: p. 224, Ex. 1-6, p. 224

Objective 20:

General Math I: Read p. 325, Ex. 17-20, p. 326
Jr. High School Mathematics: Read pp. 226-227, Ex. 1-8, p. 227.

SELF-EVALUATION

Use the proper formula to find the area of each of the following:

1. A rectangle with a length of 8 in. and a width of 7 in.

2. A parallelogram with a base of 10 ft. and a height of 21 ft.

3. A triangle with a base of 10 ft. and a height of 21 ft.

4. A circle with a radius of 4 cm. (Use $\pi = 3.14$.)

5. A trapezoid with a height of 4 in. and bases of 8 in. and 7 in.

Use the proper formula to find the volume of each of the following:

6. A rectangular solid of length 14 in., width 2 in., and height 5 in.

7. A cylinder with a base of radius 2 cm. and a height of 8 cm. (Use 3.14 for π.

8. A pyramid with a base area of 8 sq. ft. and a height of 9 ft.

9. A sphere with a radius of 6 dm. (Use 3.14 for π).

10. A cone with a radius of 2 cm. and a height of 6 cm.

EQUATIONS AND APPLICATIONS

LEARNING ACTIVITY PACKAGE

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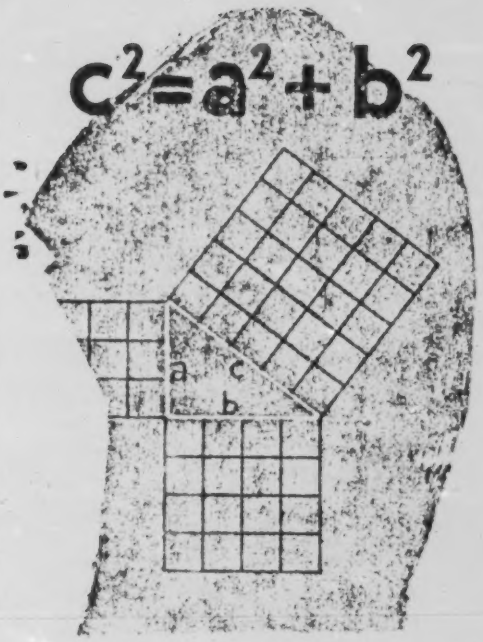
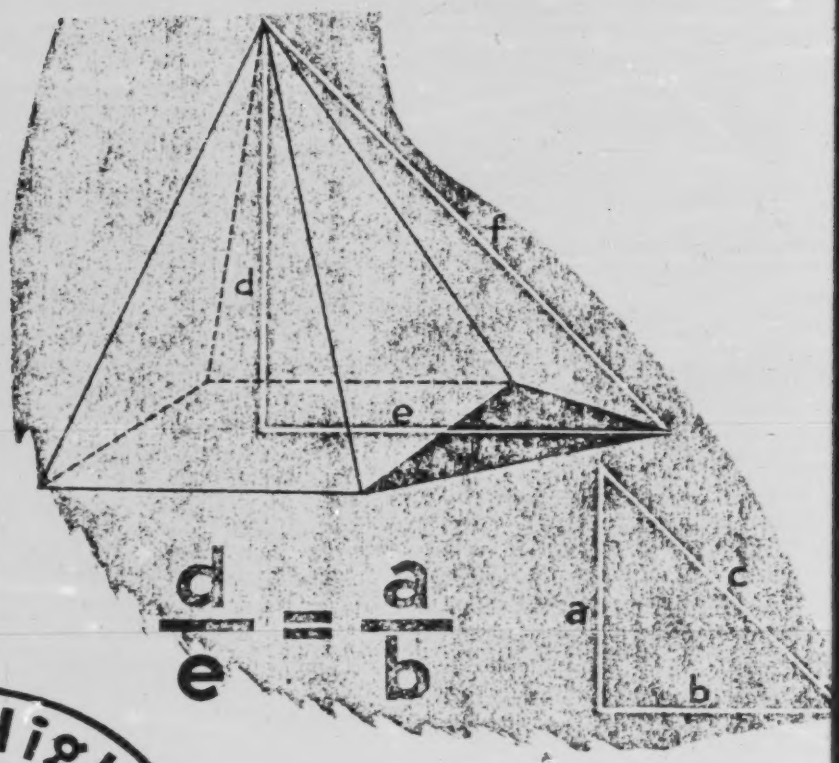




Ninety Six High School
Ninety Six, S.C.

GENERAL MATH I

REVIEWED BY

LAP NUMBER 8

WRITTEN BY J. E. Byers

8 of 12

RATIONALE

In this LAP, we shall use algebraic statements to solve various problems. The problem solving principles and processes have been, and will continue to be, important in the development of our civilization. The primary objectives are to develop understanding of the solution of equations and the use of equations to solve problems.

Section I

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Given any equation, use the trial-and-error process to solve it.

2. Given any expression find its value by using your knowledge of inverse operations.

3. Given any equation with one operation solve it by performing the inverse operation on the appropriate member of the equation.

4. Given any equation with more than one operation, solve it by performing the inverse operation on both members of the equation (Remember, one member at a time).

5. Given any expression with like terms simplify it by combining them.

6. Given any equation containing like terms, combine them and then solve.

Section I	Resources
Objective 1:	General Math I: read pp. 333-334, Ex. 1-20, p. 334
Objective 2:	General Math I: read pp. 335-336, Ex. 1-28, pp. 336-337
Objective 3:	General Math I: read pp. 337-339, Ex. 1-20, pp. 339-340 Jr. High School Mathematics 8: read pp. 74-77, Ex. 1-15, p. 75; Ex. 1-9 p. 76; Ex. 1-6, p. 77.
Objective 4:	General Math I: read pp. 340-341, Ex. 1-18, p. 342 Jr. High School Mathematics: read pp. 78-79, Ex. 1-10 p. 79.
Objective 5:	read pp. 342-344, Ex. 1-26, p. 345
Objective 6:	read pp. 342-344, Ex. 26-42, p. 345

Self Evaluation - Section I

Solve the following:

(1) $x + 2 = 5$

(2) $h - 10 = 30$

(3) $6 - b = 4$

(4) $\frac{t}{8} = 6$

(5) $4c = 20$

(6) $2x + x = 9$

(7) $5c - c = 16$

(8) $2g - g = 8$

(9) $10s + 5s = 45$

(10) $10b - 8b + 2b = 20$

Section 2

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

7. Given any verbal problem, set it up algebraically and then solve.

8. Given any verbal problem involving percents, set it up algebraically and then solve.

9. Given similar triangles determine the length of a side or measure of an angle by setting it up as a proportion and solving. Also solve a given proportion.

10. Use the Pythagorean Theorem to find the length of the missing side in a right triangle.

11. Given a table of square roots, find the exact or approximate square root of any number.

12. Use the Pythagorean Theorem and the table of square roots to find the length of the missing side in a right triangle.

Section II Resources

Objective 7: General Math I: read pp. 346-348, Ex. 1-16, p. 348-349.
Jr. High School Mathematics 8: read pp. 88-89, Ex. 1-10, p. 89

Objective 8: General Math I: read pp. 350-351, Ex. 1-30, p. 352
Jr. High School Mathematics 8: read pp. 240-243, Ex. 1-12 p. 241; Ex. 1-8, p. 243

Objective 9: General Math I: read pp. 352-355, Ex. 1-16, p. 355-356
Jr. High School Mathematics 8: read p. 236, Ex. 1-6 p. 236, read pp. 252-258, Ex. 1-5, p. 255; Ex. 1-7, pp. 256-257.

Objective 10: General Math I: read pp. 256-258, Ex. 1-10, p. 358-359.
Jr. High School Mathematics 8: read pp. 261-263 Ex. 1-6, p. 263.

Objective 11: General Math I: read pp. 359-361, Ex. 1-32, p. 364.
Jr. High School Mathematics 8: read pp. 264-266; read pp. 268-270

Objective 12: General Math I: read pp. 359-361, Ex. 33-38, p. 364.
Jr. High School Mathematics 8: read pp. 270-272, Ex. 1-7, pp. 272-273

SELF-EVALUATION 2

Solve the following verbal problems:

1. A number decreased by 19 is equal to 83. What is the number?

2. 24% of what number is 7.8?

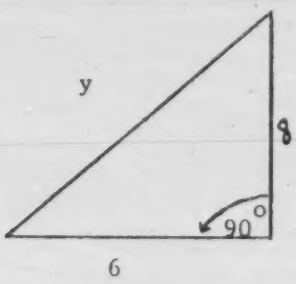
SOLVE THE FOLLOWING PROPORTIONS:

3) $\frac{x}{21} = \frac{3}{7}$

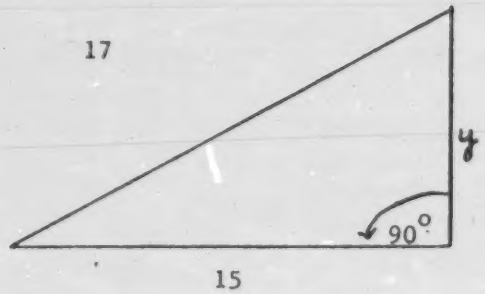
4) $\frac{3}{11} = \frac{9}{y}$

USE THE PYTHAGOREAN THEOREM TO SOLVE THE FOLLOWING:

5)



6)



STATE THE SQUARE ROOTS OF THE FOLLOWING:

7. $\sqrt{25}$

8. $\sqrt{16}$

9. $\sqrt{49}$

10. $\sqrt{36}$

LAP

LEARNING ACTIVITY PACKAGE

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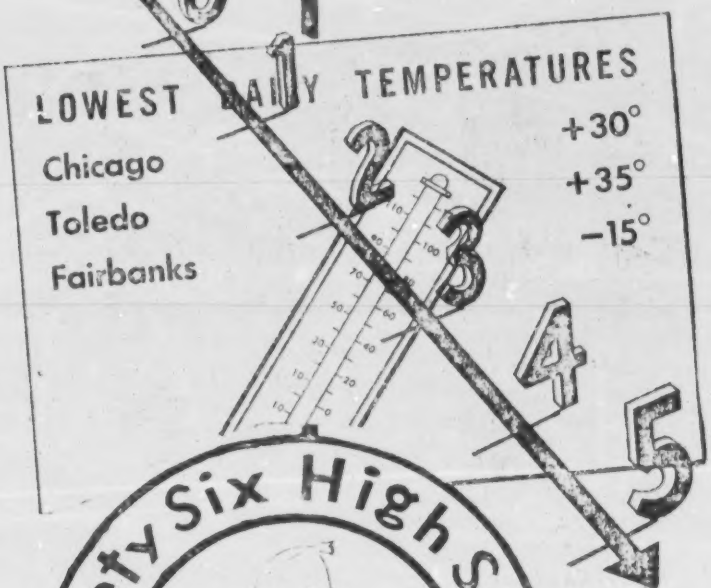
DIRECTED NUMBERS



Ninety Six High School - Ninety Six, S.C. - 1001

General Math I

REVIEWED BY J. S. Ritchie

9-8-12

LAP NUMBER 9

WRITTEN BY J. E. Byers

Revised by Miss McMullan

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RATIONALE

In this LAP you shall be introduced to a set of numbers which makes possible the solution of equations. You will also develop rules for performing the fundamental operations (addition, subtraction, multiplication, and division) with these numbers and explain how these numbers are used in graphing.

SECTION 1

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Given any directed number, express its opposite.

2. Given any number, represent it on a number line.

3. Given any two directed numbers, add them by using the number line and also by using the rules for adding directed numbers.

4. Given any two directed numbers, subtract them by using the rule for subtracting directed numbers.

5. Given any two directed numbers, multiply them by using the rule for multiplying directed numbers.

6. Given any two directed numbers, divide them by using the rule for dividing directed numbers.

7. Given any equation containing directed numbers, perform the operations indicated and then solve.

8. Given any point locate it on a rectangular coordinate system.

9. Given any equation, graph it after making a table of values of at least three points.

RESOURCES

Objective 1:

General Math I: read pp. 371-373, Ex. 1-16 p. 373
Jr. High School Mathematics 8: read pp. 45-46, Ex. 1-6, p. 46
Modern School Mathematics 7: read p. 502, Ex. 9-20

Objective 2:

General Math I: read pp. 374-375, Ex. 1-8 p. 376
Modern School Mathematics 7: read pp. 500-502, Ex. 1-8, pp. 502-503
Jr. High School Mathematics 8: read p. 43-44, Ex. 1-5, p. 44

Objective 3:

General Math I: read pp. 377-378, Ex. 1-18 p. 379; read pp. 380-382, Ex. 1-25 pp. 382-383
Jr. High School Mathematics 8: read pp. 48-49, Ex. 1-16 p. 49
Modern School Mathematics 7: read pp. 504-505, Ex. 13-26

Resources (cont.)

Objective 4:

General Math I: read pp. 383-385, Ex. 1-30, p. 385: read pp. 385-587, Ex. 1-30 p. 388

Jr. High School Mathematics 8: read pp. 50-51, Ex. 1-8, p. 51

Modern School Mathematics 7: read pp. 509-511, Ex. 1-14 pp. 511-512

Objective 5:

General Math I: read pp. 388-391, Ex. 1-32, p. 391

Jr. High Mathematics 8: read pp. 52-53, Ex. 1-11 p. 53

Modern School Mathematics 7: read pp. 513-515 Ex. 1-18 p. 516

Objective 6:

General Math I: read pp. 392-393, Ex. 1-24 p. 393-394

Jr. High School Mathematics 8: read p. 56, Ex. 1-10, p. 56

Modern School Mathematics 7: read pp. 518-519, Ex. 5-20 p. 519

Objective 7:

General Math I: read pp. 394-395, Ex. 1-22 p. 396

Jr. High School Mathematics 8: p. 60 - 1-10 p. 60

Objective 8:

General Math I: read pp. 396-399, Ex. 1-4 pp. 399-400

Jr. High School Mathematics 8: pp. 308-309, Ex. 1-3 p. 309

Objective 9:

General Math I: Read pp. 396-399, Ex. 5-16 p. 400

SELF-EVALUATION 1

EXPRESS THE OPPOSITE OF THE FOLLOWING:

1) +8%

2) -15¢

ILLUSTRATE EACH OF THE FOLLOWING ON A SEPARATE NUMBER LINE:

3) $-7 + 4$

4) $(-3) + (-5)$

ADD AS INDICATED:

5. $12 + 13$

6. $25 + (-13)$

7. $(-35) + 7$

8. $(-19) + (-11)$

SUBTRACT AS INDICATED:

9. $7 - 3$

10. $9 - (-5)$

11. $(-4) - 9$

12. $(-3) - (-9)$

MULTIPLY AS INDICATED.

13. $4(-3)$

14. $(-7)2$

15. $(-7)(-5)$

16. $(-\frac{1}{2})\ (-\frac{1}{5})$

DIVIDE AS INDICATED:

17. $(-16) \div 8$

18. $30 \div (-6)$

19. $(-50) \div (-5)$

20. $(-\frac{2}{3}) \div (+\frac{5}{6})$

SOLVE THE FOLLOWING EQUATIONS:

21. $b + 9 = 2$

22. $4x = -12$

23. $\frac{c}{-2} = 4$

24. $3y - 7 = 5$

GRAPH THE FOLLOWING ON A RECTANGULAR COORDINATE SYSTEM.

25. $x + 2y = 10$

26. $x + y = 8$

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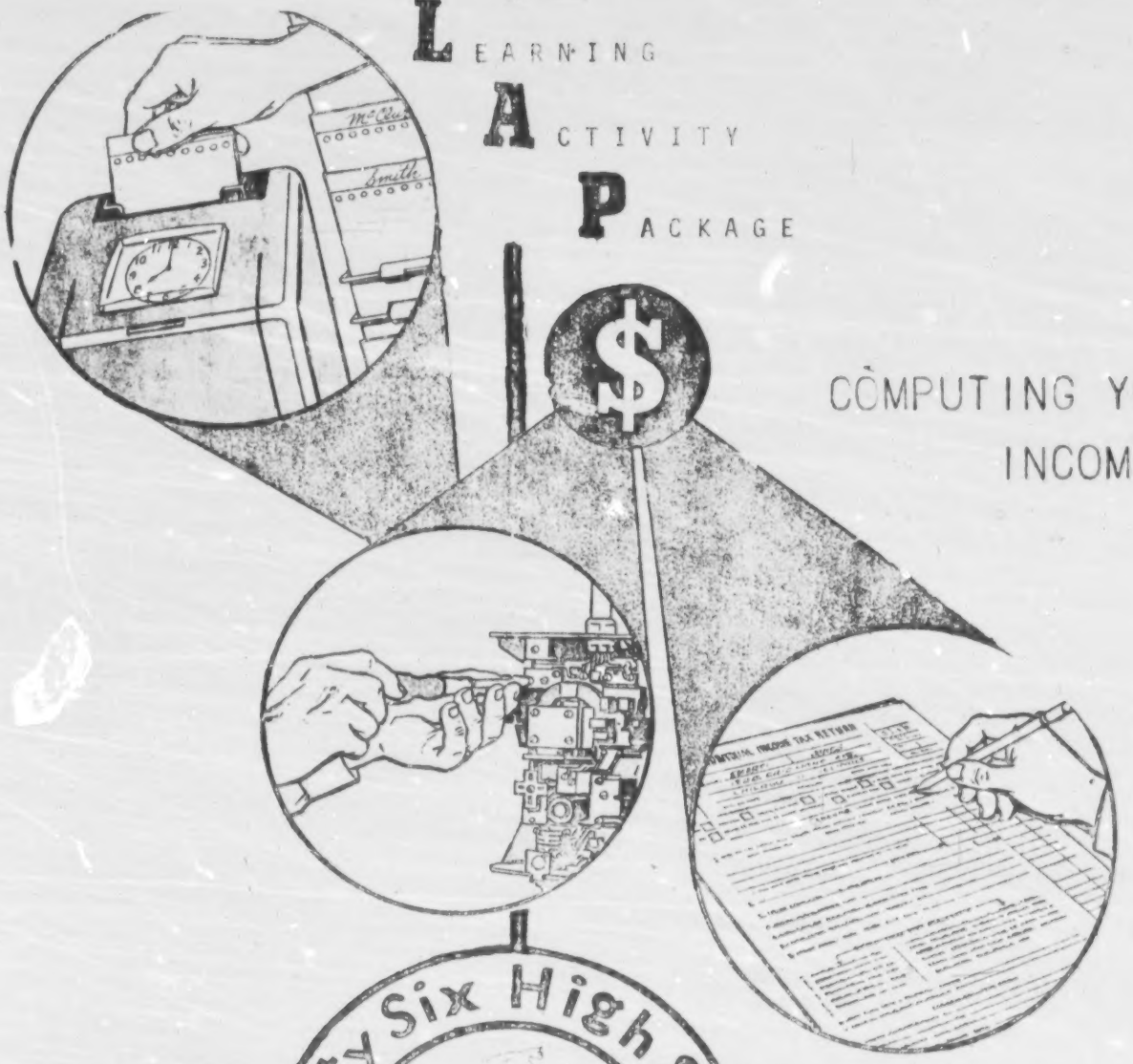

COMPUTING YOUR INCOME

Ninety Six High School
Ninety Six, S.C.

General Math I

REVIEWED BY J. S. Rutledge

10/12

LAP NUMBER 10

WRITTEN BY J. E. Byers

RATIONALE

Many young people earn money by running errands, doing odd jobs, delivering newspapers, babysitting, and in many other ways. Perhaps, you have found it necessary or convenient to engage in one of these gainful activities. If you have, you already realize the importance of being able to compute (figure) your income. By computing your income, you can tell what amount you should receive and whether or not your employer has made an error in computing your pay. Of course, when you leave school and engage in full-time employment, the ability to compute your income will be of still greater importance.

In this LAP, you will compute earnings which are paid in various ways. You will also compute the deductions (subtractions) which are made from earnings for such items as Federal income tax and social security tax.

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SECTION 1

BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Given an employee's hourly wage, compute his salary for a given number of hours.

2. Given the exact time a company begins and ends a working day and the time off for lunch, also given the amount to be docked (deducted) from an employee's salary for being late and given his hourly wage, determine his pay for a day's or week's work.

3. Given the amount an employee is paid for doing piece work (keys, doll dresses, etc.) and the number of pieces completed in a day's or week's time, determine the salary he or she should be paid.

4. Given an employee's sales, find his commission.

5. Given an employee's weekly or monthly salary and sales, find his commission and his total earnings.

RESOURCES

Objective 1:

General Math I: read pp. 405-407, Ex. 1-12 pp. 407-409

Objective 2:

General Math I: read pp. 409-411, Ex. 1-10 pp. 411-412

Objective 3:

General Math I: read pp. 412-413, Ex. 1-10 p. 414

Objective 4:

General Math I: read pp. 415-416, Ex. 1-3, p. 416

Objective 5:

General Math I: read pp. 415-416, Ex. 4-18, p. 417

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1. Tom Neely earns $1.80 an hour as a printer's helper. Last week, he worked the usual 40 hours at regular pay and 8 hours of overtime at time and a half. What were his weekly earnings?

2. Miss Laver's workday begins promptly at 8:00 a.m. and ends at 4:30 p.m. She has an unpaid lunch period of ½ hour. Her wages are docked ⅛ hours pay for each ⅛ hour period or fraction thereof which she may be late. Her hourly wage is $2.20. If her timecard shows that yesterday she reported for work at 8:23 a.m. and left at 4:30 p.m., how much did she earn?

3. Gary Barton repairs tires at a garage. He is paid $.85 for each tire he repairs. Last Saturday, he repaired 11 tires. What was his total wage?

4. Miles Keller is a salesman. He is paid a salary of $55.00 a week and he receives a 6% commission on all his sales. If he solf $850.00 of merchandise last week, how much did he earn last week.

SECTION 2

BEHAVIORAL OBJECTIVES

At the completion of your prescribed course of study, you will be able to:

5. Given a table of social security tax, determine the amount of tax to be taken out on a given weekly or yearly income.

6. Given a person's salary for a year, the number of dependents he has and the amount he is allowed to deduct for each dependent, compute his taxable income for the year by itemizing or taking the 10% standard deduction.

7. Given a person's taxable income for the year and also given a Federal Income Tax table, determine the tax that is to be paid.

RESOURCES

Objective 5:

General Math I: read pp. 418-420, Ex. 1-14 p. 420

Objective 6:

General Math I: read pp. 422-425, Ex. 1-16 pp. 425-426

Objective 7:

General Math I: read pp. 427-429, Ex. 1-20 pp. 429-430

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SELF EVALUATION 2

1. How much social security tax would be withheld for a salary of $105 at a tax rate of $3\frac{5}{8}$ %?

2. Compute the taxable income on a gross income of $7,250 if the taxpayer has 3 dependents and his deductions total $950.

3. Compute the income tax for Mr. Tilman. His gross income was $9,463. He is married (his wife had no income) and has 2 dependent children. He takes the 10% standard deduction. (use Schedule II on p. 427).

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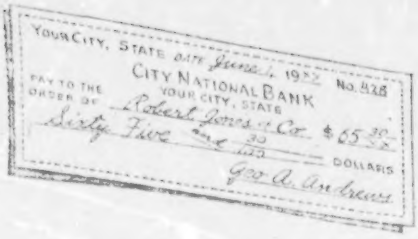
LEARNING ACTIVITY PACKAGE

MANAGING YOUR INCOME


YOUR CITY, STATE June 1, 1972 No. 828
CITY NATIONAL BANK
YOUR CITY, STATE
PAY TO THE ORDER OF Robert Jones & Co. $65.30
Sixty Five and 30/100 DOLLARS
Geo A. Anderson

Ninety Six High School
Ninety Six, S.C.

General Math I

REVIEWED BY

LAP NUMBER 11

WRITTEN BY J. E. Byers

Revised by Miss McMullan

11-12-71

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RATIONALE

It is important that you learn how to manage your income. Intelligent management of income requires planning. This involves balancing income with expenses, making wise decisions on how much and for what purpose to spend, and saving for emergencies and retirement. Only with proper management of income can a person hope to regularly set aside savings. In fact, it may be said that the better the management of income the greater amount which may be saved. It is important to save not only so that funds will be available for emergencies and retirement, but also so that the savings can be used to earn additional income and pay expected expenses. You may have heard it said that it is not what you earn, but what you save that counts. You will learn how to keep records of income and expenses. Also, you will learn how to consider various factors involved in buying wisely. Finally, you will learn how the checking account aids in managing your income.

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BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Given the date an item or items were bought, the name of the item, the person's income, the amount the item or items cost, and the cash on hand after each purchase, make a record of income and expenses.

2. Given a suggested budget for a typical high school student, determine the amount spent on each item.

3. Given a suggested budget for a typical high school student, determine what per cent was spent on each item in the budget.

4. Given the price of a particular item and the price of a large number of the same item, determine the amount saved by buying the larger quantity.

5. Given any check with the necessary information included, determine the following:

   a) What is the number of the check?
   b) Who will have to endorse the check?
   c) What is the face of the check?
   d) Who is the payee?
   e) Who is the drawer?

6. Given any check stub, fill in the necessary information and figure the balance to carry forward.

7. Given a person's bank statement and his checkstub balance, find his correct bank statement and his corrected checkstub balance.

Resources - Section I

Objective 1- General Math I: read pp. 435-437, Ex. 1-4 pp. 438-439

Objective 2- General Math I: read pp. 439-442, Ex. 1-12 p. 442

Objective 3- General Math I: read pp. 439-442, Ex. 13-16 p. 442

Objective 4- General Math I: read pp. 443-445, Ex. 1-6 pp. 445-446

Objective 5- General Math I: read pp. 446-449, Ex. 1-10 pp. 449-450

Objective 6- General Math I: read pp. 446-449, Ex. 11-14 pp. 450-451

Objective 7- General Math I: read pp. 451-453, Ex. 1-8, pp. 454-455

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1. Given the following information, write (in table form) a record of income and expenses for Gerry Novak: May 11, balance from previous record period - $4.19; May 11, allowance received - $6.00; May 11, lunch - 55 cents; May 11, movie - $1.50; May 12, lunch - 70 cents; May 13, lunch - 62 cents; May 13, haircut - $1.75; May 14, lunch - 80 cents; May 14, after-school snack - 25 cents; May 15, lunch - 60 cents; May 15, school supplies - 50 cents; May 16, baseball game - $2.00.

2. Determine what per cent is spent on each item if Don Tower has a weekly income of $10.00 and spends the following amounts for the items indicated: food - $3.00; clothing, $1.00; personal needs, $2.50; recreation, $2.00; savings, $1.25; other, $.25.

3. A washing machine which normally lasts for 5 years sells for $165.00. A better quality washing machine which normally lasts for 10 years sells for $285.00. On the basis of original cost and the amount of time each machine normally lasts, which costs less per year? How much less?

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4. The two check stubs shown below are consecutive. Correctly fill in the blank spaces.

NO. 19
DATE April 3 19
TO Fashion Shop
FOR Dress

	DOLLARS	CENTS
BAL. BRO'T FOR'D	125	92
AMT. DEPOSITED	79	12
TOTAL		
AMT. THIS CHECK	14	98
BAL. CARD FOR'D		

NO. 19
DATE April 5 19
TO Mrs. Dremel
FOR Housecleaning

	DOLLARS	CENTS
BAL. BRO'T FOR'D		
AMT. DEPOSITED	20	00
TOTAL		
AMT. THIS CHECK	10	00
BAL. CARD FOR'D		

5. Given the following information, find the corrected bank statement balance and the corrected check stub balance, and write whether they are equal:

Bank statement balance is $75.32
Check stub balance is $125.09
There are checks outstanding for $20.00 and $31.23
Not shown by the bank statement is a deposit for $100.00
The service charge reported by the bank statement is $1.00

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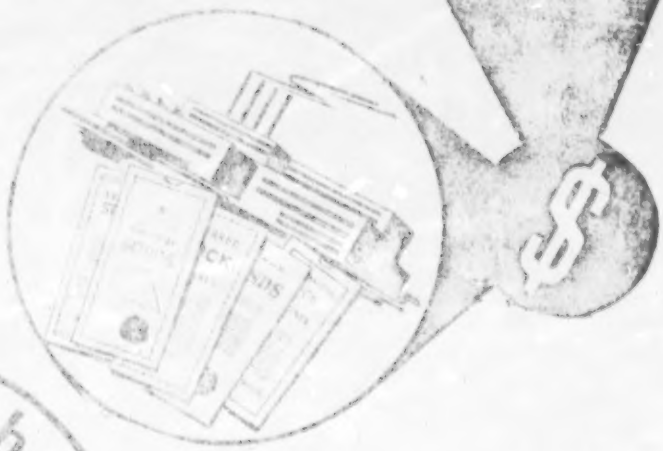

Ninety Six High School
Ninety Six, S.C.

USING YOUR INCOME

General Math I

REVIEWED BY

12 & 12

LAP NUMBER 12

WRITTEN BY J. E. Byers

Revised By Miss McMullan

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RATIONALE

If you were employed as a buyer of equipment for a business which gave you the duty of intelligently spending a quarter million dollars, would you consider this a serious responsibility? In a sense, you will actually be faced with such a responsibility because it is presently estimated that the average man in the United States will earn a quarter million dollars in his litetime. He, his wife, and his family will use this income for a variety of purposes, such as to pay taxes, to provide food, shelter, and other necessities, to purchase certain so-called luxury items, and to set aside savings.

Most of this quarter million dollars of income will be spent after it is earned. Some of this income will be "spent" before it is earned. This latter statement may seem peculiar until you realize that buying on credit and paying a series of partial payments may be considered a way of spending income which is yet unearned. Thus we might say that each person has a buying power based on expected earnings as well as on actual earnings. The intelligent use of income involves the sensible use of both actual and expected earnings.

In this LAP you will discuss the use of expected and actual income. You will also discuss insurance as a means of using actual income and of protecting both actual and expected earnings.

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BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

1. Given the discount rate and the regular price of a particular item on sale, find the discount and the sale price.

2. Given the discount and the regular price of an item, find the discount rate.

3. Given any amount of money borrowed, the rate of interest, and the time (in years or months) to pay it back, determine the interest that you would have to pay.

4. Given any amount of money borrowed, the rate of interest, and the time (in months) to pay it back, determine the interest and the true interest rate if the interest is deducted in advance.

5. Given any amount of money borrowed, the monthly payment, and the time to pay it back, determine the interest, the average principal, and the interest rate.

6. Given the cash price of a particular item and also given the down payment, monthly payment, and the number of months you will have to pay buying on time, determine the carrying charge and the interest rate.

Section I Resources

Objective 1 - General Math I: read pp. 461-463, Ex. 1-10 p. 463.

Objective 2 - General Math I: read pp. 461-463, Ex. 11-24 p. 464.

Objective 3 - General Math I: read pp. 464-467, Ex. 1-10 p. 467.

Objective 4 - General Math I: read pp. 464-467, Ex. 11-24 p. 468.

Objective 5 - General Math I: read pp. 468-471, Ex. 1-16 p. 472.

Objective 6 - General Math I: read pp. 473-474, Ex. 1-14 p. 475.

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1. During a clearance sale, the price of a suit at Jones is reduced 20%. At this rate, find the discount and the sale price if the suit regularly sells for $63.00.

2. The regular price of a transistor radio is $24.80. If, at a sale, a discount of $3.72 is offered, what is the discount rate?

3. Mr. Coleman borrowed $200 at 4% for 2 years. If the principal and interest are to be repaid at the end of the loan period, find the interest to the nearest cent.

4. Mr. Jacoby borrowed $350 at 5% for 6 months. If the bank deducts its interest in advance, find the interest to the nearest cent and the actual interest rate to the nearest one-tenth of one per cent.

5. Mr. Kazor borrowed $756.00 from a personal loan company. He had to repay the loan in 36 monthly payments of $25.00 each. To the nearest per cent, what rate of interest did he pay?

6. Miss Blake bought a fur coat by paying $40.00 down and $32.60 a month for 12 months. If the cash price of the coat is $400.00, find the carrying charge.

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BEHAVIORAL OBJECTIVES:

At the completion of your prescribed course of study, you will be able to:

7. Given any amount of money deposited in a person's savings account and the time (in years) that it will be allowed to draw interest and also given the rate of interest, compute the total interest compounded annually and semiannually.

8. Given the compound interest formula, find the compounded interest on a specific amount of money at any given rate and time.

9. Given a table of the market prices of stocks and bonds, determine the cost of a given number of shares at a specific market value.

10. Given a premium table, determine the annual premium for a given term insurance policy taken out a a given age.

Section II Resources

Objective 7 - General Math I: read pp. 476-479, Ex. 1-14 pp. 479-480

- Modern School Mathematics 7: read pp. 477-479, Ex. 1-33 pp. 479-481

Objective 8 - General Math I: read pp. 481-485, Ex. 1-14, p. 485

Objective 9 - General Math I: read pp. 486-489, Ex. 1-24 pp. 490-491

Objective 10- General Math I: read pp. 492-494, Ex. 1-10 pp. 495-496

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SELF-EVALUATION

1. Compute the interest on $600 if the money is to be deposited in a savings account for 3 years at 4% interest, and the interest is compounded annually.

2. Using the formula $i = p\left[(1 + rt)^n - 1\right]$, compute the interest which a $200 savings account will earn in $1\frac{1}{2}$ years if interest is paid at 6%, compounded semiannually.

3. If a stock market quotation indicated that Nelson Industries stock sold for a low price of $48\frac{1}{8}$ for the day, what would 50 shares of stock cost at this price?

4. If the annual premium on 1000 dollars worth of 20-payment life insurance is $35.83, find the annual premium on 5,500-dollar policy of this kind of insurance.